Serial no. 09/ 750, 480 January 23, 20043

In The Claims

The following claims have been submitted, which if entered will be amended as follows:

Claim 1 has been amended as follows:

1.(amended, corrected) In a process in which a material is electrochemically loaded with second material, a method of monitoring the loading within said material that comprises:
loading said second material,
driving a mechanical vibration of said material loaded with second material,
monitoring the frequency of said vibration, and
relating said frequency of said vibration to the mass of said material.

.(amended) In a process in which ~~for producing a product using~~ a material ~~which~~ is electrochemically loaded with second material, a method of monitoring the loading within said material that comprises:
loading said second material,
~~mechanically coupling said material so as to enable~~ producing a mechanical vibration of said material loaded with second material,
~~providing means to drive said vibration,~~
~~providing means to follow~~ monitoring the frequency of said vibration, and
relating said frequency of said vibration to the mass of said material.

Claim 8 has been amended as follows:

8. (amended, corrected)

In a process for loading a material with a second material, a method of monitoring the loading within said material that comprises:

loading said second material,

mechanically driving said material so as to enable a mechanical vibrations of said material,

providing means to produce said vibrations,

providing means to detect the frequency of said vibrations, and

relating said frequency to the mass of said material.

8. (amended) In a process for loading a material with a second material, a method of monitoring the loading within said material that comprises:

loading said second material,

mechanically <u>driving</u> ~~coupling~~ said material so as to enable a mechanical vibrations of said material,

providing means to produce said vibrations,

providing means to detect the frequency of said vibrations<u>, and</u>

<u>relating said frequency to the mass of said material</u>.

Claim 10 has been amended as follows:
10. (amended, corrected)
A process as in claim 8 wherein the frequency of said vibration is determined by the material producing interference with an optical beam.

10. (amended)
A process as in claim 8 wherein the frequency of said vibration is <u>monitored</u> ~~followed~~ by the material producing interference with an optical beam.

Claim 17 has been amended as follows:
17. (amended, corrected) An apparatus to monitor the loading of a material by a second material which includes in combination:
means to load said second material,
means to enable mechanical vibrations of said material loaded with said second material,
means to drive said vibrations,
means to monitor the frequency of said vibrations, and
means to relate said frequency to the mass of said material.

17. (amended) An apparatus to monitor the loading of a material by a second material which includes in combination:
means to load said second material,
means to enable mechanical vibrations of said material ~~by mechanically coupling~~ <u>loaded with</u> said <u>second</u> material,
means to drive said vibrations,
means to monitor the frequency of said vibrations<u>, and</u>
<u>means to relate said frequency to the mass of said material</u>.

In The Specification

The following two sentences have been submitted for entry on page 14, at the end of the first paragraph, after, "The optical irradiator subsystem and optical detection subsystem are labeled as numbers 30 and 31. In the configuration shown in figure 3, said cathode (labeled as number 1) is electromagnetically driven by the transverse magnetic coil (labeled as number 41). For the monitoring configuration, said cathode is driven periodically by the driving subsystem (labeled as number 42) to produce a magnetic field intensity (with flux lines labeled as number 43) located in the vicinity of said cathode (1)."

(amended) Page 14 paragraph 1

"The optical irradiator subsystem and optical detection subsystem are labeled as numbers 30 and 31. In the configuration shown in figure 3, said cathode (labeled as number 1) is electromagnetically driven by the transverse magnetic coil (labeled as number 41). For the monitoring configuration, said cathode is driven periodically by the driving subsystem (labeled as number 42) to produce a magnetic field intensity (with flux lines labeled as number 43) located in the vicinity of said cathode (1). <u>In the preferred embodiment, the loading power source (labeled number 50) is a Keithley 225 current source, the lower large mass (labeled as number 11) is palladium [99.98+% metals basis, Alfa Aesar] of mass 18 grams, the cathode (labeled number 1) is palladium wire [99.98+% metals basis, Alfa Aesar] of mass 0.5 grams, the anode (labeled a number 60) is platinum wire [1 mm diameter, 99.998% metals basis, Alfa Aesar, Ward Hill, MA], the reaction chamber (labeled as number 16) is polypropylene, the solution includes heavy water [purity 99%; Cambridge Isotope Laboratories, Andover, MA], the distance between anode and cathode is 1.25 cm, the reinforcing springy material (labeled as number 13) is a composite mass of stainless steel with a palladium wire [99.98+% metals basis, Alfa Aesar] of length of ~3 cm, with a thickness ratio of stainless steel to palladium of 3:1. The magnetic coil (labeled as number 41) has about 6000 turns and is driven by a power subsystem (labeled as number 42; LAMBDA 340A or HP/Harrison 6525A with an electrical resistor in series for a total of 6.5 ohms), at 8.6 volts. to produce a magnetic field (flux lines labeled as number 43) of 1600 milligauss at 3 cm distance from coil, resulting in a vibration frequency of circa 6 kilohertz, which is followed, in the preferred embodiment, the optical beam (labeled as number 12) is from laser (labeled as number 18; Edmund Scientific, Barrington, NJ) from the irradiator subsystem (labeled as number 30) which goes to the optical detector (a phototransistor (labeled as number 20); DigiKey Electronics, River Falls, MN), part of the optical detection subsystem (labeled as number 31).</u>"